

## 2004 Wetland Mitigation Monitoring Report for FAS 1637 (TR 478) Sangamon County, Illinois

### Introduction

On September 30 we evaluated a site that will be used as a wetland mitigation monitoring area. This is the first year out of the proposed five years of monitoring at the site. A second site visit took place on November 17, 2004. This site was previously monitored and had failed to meet the three criteria of being a wetland floodplain forest. Changes that were made to the project included planting more tree stage shrubs. Also, part of the area that failed was deleted from the new plan and a new area was acquired nearby as a substitute for the deleted area. Thus, previous site numbering and boundaries have changed since the original (1998) project request. Site 1 now consists of the original Site 1 plus part of Site 2. Site 2 now consists of part of the original Site 3 plus a new area. Site 2 consists of a borrow area and an old road bed area. Site 1 consists of an old road bed and a previously cropped area. Site 1 is found west of Young Road and site 2 is located east of Young Road. Site location is NW/4, SW/4, Section 9, T.15N., R.3W. (Mechanicsburg 7.5 minute quadrangle). Some of the previously planted shrub stage trees at these sites that failed are now being replaced with different species of shrub stage trees. Vegetation species lists and soil and hydrology characteristics as well as wetland determination forms are noted in this report. Project goals, objectives, and performance criteria are included in this report, as are monitoring methods, monitoring results, summary information, and recommendations.

### Goals, Objectives, and Performance Criteria

Goals, objectives, and performance criteria follow those specified in the IDOT project request (M. Sunderland, IDOT, 2004). Performance criteria are based on those specified in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987). Each goal should be attained by the end of the five-year monitoring period. Goals, objectives, and performance criteria are listed below.

Project Goal #1: The created wetland mitigation area should be determined to be jurisdictional wetland by current federal definition.

Objective: The created wetland should consist of approximately 5.80 acres of floodplain forest. It should satisfy the three criteria of the federal wetland definition: dominant hydrophytic vegetation, hydric soils, and wetland hydrology.

#### Performance Criteria:

A. Predominance of Hydrophytic Vegetation. More than 50% of the dominant plant species must be hydrophytic.

B. Presence of Wetland Hydrology. The site must have soils saturated to the surface (water table within 12 inches to the surface) or be inundated to a depth of less than 2 meters (6.6 ft) for at least 12.5% of the growing season.

C. Presence of Hydric Soils. Hydric soil characteristics should be present, or conditions favorable for hydric soil formation should persist at the site.

Project Goal #2: The forested wetland plant community should meet standards for survival of planted species and overall floristic composition.

Objective: Planted trees should dominate the site.

Performance Criteria: There should be a 100% survival rate from the planted shrub stage trees. The new wetland mitigation monitoring plan calls for a total of 125 trees for the whole project. There should be at least 125 (100% survival rate) live planted trees for each year. Trees will be replanted if needed during the monitoring period.

### Methods

#### Project Goals #1 and #2

#### Performance Criteria

A. Predominance of Hydrophytic Vegetation. The method for determining dominant vegetation at a wetland site is described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). This method is based on aerial coverage estimates for individual plant species. Each of the dominant plant species is then assigned its wetland indicator status rating (Reed 1988). Any plant rated facultative or wetter (*i.e.*, FAC, FAC+, FACW, and OBL) is considered hydrophytic. A predominance of hydrophytic vegetation in the wetland plant community exists if more than 50% of the dominant species present are hydrophytic.

B. Presence of Wetland Hydrology. The Illinois State Geological Survey (ISGS) is monitoring this site. Well data and analysis will be included in the report. Also, Illinois Natural History Survey personnel will utilize hydrologic field indicators to determine the presence or absence of wetland hydrology as described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987).

C. Presence of Hydric Soils. INHS personnel will examine soil cores for field indicators to determine the presence or absence of hydric soils as described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Field Indicators of Hydric Soils in the United States* (USDA, 2003). Soil profile descriptions from the sites can be found below.

D. Tree Density (live planted trees/acre for each tree species). Live trees were counted and species tallied for both sites.

#### Photography

Photos were taken in each community facing north and south directions. Photographs are presented in appendix 2.

### Results

Project Goal #1: The created wetland mitigation area should be determined to be a jurisdictional wetland by the current federal definition.

#### Performance Criteria

##### A. Predominance of Hydrophytic Vegetation.

Dominant hydrophytic vegetation is present at all sites. Site 1 herbaceous layer is dominated by barnyard grass (*Echinochloa muricata*, OBL), marsh elder (*Iva annua*, FAC), and pigeon grass (*Setaria glauca*, FAC). In the shrub stage tree layer planted species of river birch (*Betula nigra*, FACW), pecan (*Carya illinoensis*, FACW), green ash (*Fraxinus pennsylvanica*, FACW), swamp white oak (*Quercus bicolor*, FACW+), and pin oak (*Quercus palustris*, FACW) did not constitute enough coverage of the site to be considered dominants.

Site 2 herbaceous layer is dominated by panicled aster (*Aster simplex*, FACW) and fog-fruit (*Phyla lanceolata*, OBL). In the shrub stage tree layer planted species of river birch (*Betula nigra*, FACW), pecan (*Carya illinoensis*, FACW), green ash (*Fraxinus pennsylvanica*, FACW), swamp white oak (*Quercus bicolor*, FACW+), and pin oak (*Quercus palustris*, FACW), and natural vegetation of boxelder maple (*Acer negundo*, FACW), silver maple (*Acer saccharinum*, FACW), green ash (*Fraxinus pennsylvanica*, FACW), sycamore (*Platanus occidentalis*, FAC+), sandbar willow (*Salix exigua*, OBL), and black willow (*Salix nigra*, OBL) did not constitute enough coverage of the site to be considered dominants.

#### B. Presence of Wetland Hydrology.

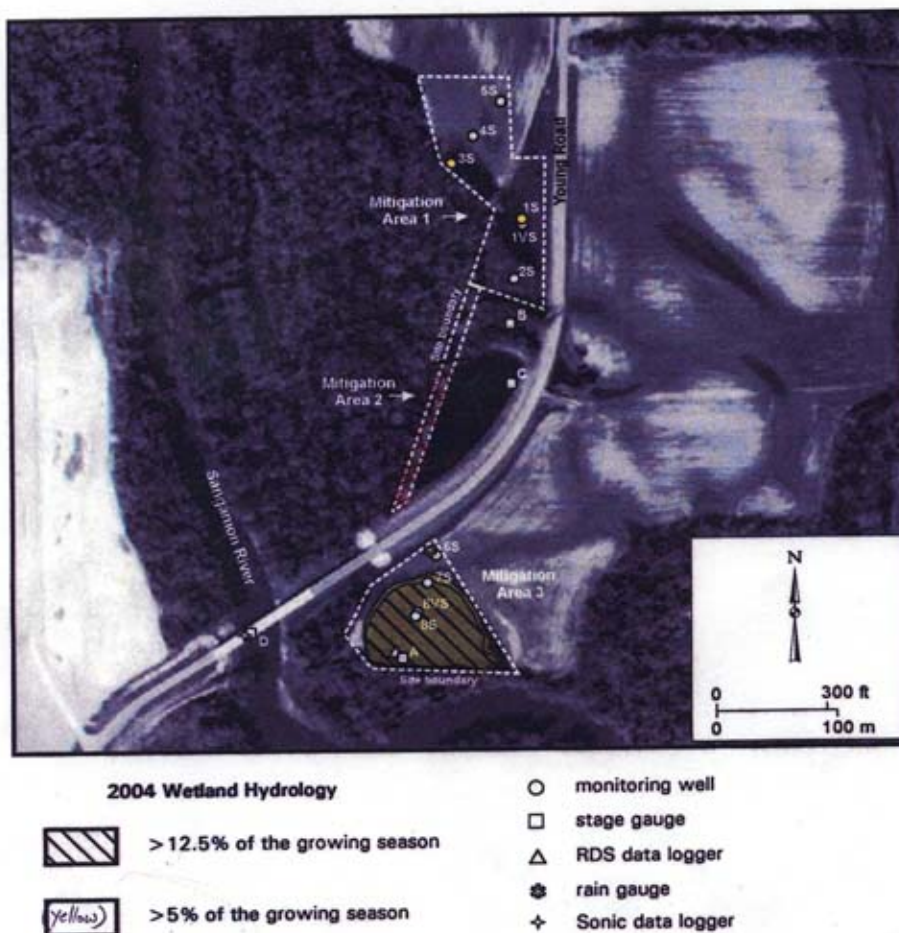
Detailed hydrologic monitoring by the Illinois State Geological Survey (ISGS) is being performed at this site. Both areas occur in the Sangamon River floodplain. There were no visual signs of wetland hydrology present at site 1. This site seems fairly high for the most part. Correspondence with ISGS personnel (Eric Plankell), stated that during times of high water on the Sangamon River, flooding may occur in the floodplain forest to the west of the site and also briefly onto Site 1. This water recedes quickly though and ISGS failed to measure any wetland hydrology at the site. Furthermore, a deep borrow area south and east of this site may play a role in limiting water on the site. Site 2 is closer to the Sangamon River and receives overflow from the river during times of high water. Part of Site 2 is a borrow area with no planted trees that was inundated during the field visit conducted in November. For this area, the ISGS measured 0.7 ha (1.8 acres) that may meet wetland hydrology at 5%, and 0.6 ha (1.5 acres) that conclusively meets wetland hydrology at 12%. The ISGS did not measure any wetland hydrology in the area where shrub stage trees were planted however. The part of Site 2 where the shrub stage trees were planted had some places of barren soil which may be attributed to standing water but may also suggest poor soil conditions. This area was also scraped and slopes into the borrow area. Watertable depth at the time of the field investigation at the sites where the shrub stage trees was planted were greater than 1.3 m (50 in). Well data from the ISGS can be found below.

# Buckhart Wetland Compensation Site

[FAS 1637 (TR 478)]

## Estimated Areal Extent of 2004 Wetland Hydrology

Based on data collected between May 18, 2004 and September 1, 2004  
map based on USGS digital orthophotographs Mechanicsburg, SE and SW quarter quadrangles  
produced from 4/12/98 aerial photography (ISGS 2001)



### C. Presence of Hydric Soils.

Soils were examined at both sites. Besides Site 1 consisting of an old cropped field, it also has an old road bed transecting the site. This area is compacted and soil probing was a problem in this area. Most of the site consists of Tice silty clay loam (non-hydric soil). Also, a very small area had Sawmill silty clay loam (hydric soil). This area consisted of 0.11 ha (0.28 acre) out of a total of 1.27 ha (3.14 acre) at the site. Site 2 consists of a borrow area and also an old road bed. The deep borrow area and a small scraped portion of the tree planting area had hydric soils. The borrow area consisted of 0.6 ha (1.5 acre) and the tree planted area had 0.01 ha (0.03) acre of hydric soils. These areas are identified as 2B and 2A on the aerial photos. The vast majority of the site where the trees were planted does not have hydric soils. The tables below give a brief soil description of the hydric and non-hydric areas of both sites. Hydric areas will be marked on the aerial photographs.

Site 1 (west of Young Road)

Tice silty clay loam (non-hydric soil, some areas have less of a surface than described here)

<u>Hor- izon</u>	<u>Depth</u>	<u>Matrix Color</u>	<u>Concre- -tions</u>	<u>Iron Masses</u>	<u>Pore linings</u>	<u>Iron Deplet.</u>	<u>Clay Deplet.</u>	<u>Tex- ture</u>	<u>Structure</u>
	0-20 in	10YR 3/1						Sil	gr
	20-30 in	10YR 4/3		Ffp 7.5YR 4/6				Sicl	Pr

Sawmill silty clay loam (hydric soil)

<u>Hor- izon</u>	<u>Depth</u>	<u>Matrix Color</u>	<u>Concre- -tions</u>	<u>Iron Masses</u>	<u>Pore linings</u>	<u>Iron Deplet.</u>	<u>Clay Deplet.</u>	<u>Tex- ture</u>	<u>Structure</u>
	0-24 in	10YR 3/1						Sicl	Sub bl
	24-36 in	N4/		Ffp 7.5YR 4/6				Sicl	Pr

Site 2 (east of Young Road)

Tice silty clay loam (non-hydric soil, furthestmost north of the river)

[illegible]

## Tice silty clay loam (non-hydric soil, sample taken closest to the river)

<u>Hor- izon</u>	<u>Depth</u>	<u>Matrix Color</u>	<u>Concre- -tions</u>	<u>Iron Masses</u>	<u>Pore linings</u>	<u>Iron Deplet.</u>	<u>Clay Deplet.</u>	<u>Tex- ture</u>	<u>Structure</u>
	0-11 in	10YR 3/2						Sil	Sub bl
	11-30 in	10YR 4/3 10YR 4/2						Sicl	Pr

## Hydric soil (scraped area)

<u>Hor- izon</u>	<u>Depth</u>	<u>Matrix Color</u>	<u>Concre- -tions</u>	<u>Iron Masses</u>	<u>Pore linings</u>	<u>Iron Deplet.</u>	<u>Clay Deplet.</u>	<u>Tex- ture</u>	<u>Structure</u>
	0-7 in	2.5Y 2.5/1			Mfp 10YR 4/4			Sil	gr
	7-20 in	2.5Y 5/1 2.5Y 5/2		Ffp 7.5YR 4/6	Mfp 10YR 4/4			Sicl	Pr

Wetland determination forms can be found in Appendix 1.

Project Goal #2: The created wetland should meet minimum standards for vegetational cover of a floodplain forest.

## Performance Criteria

At this site 125 live planted trees are required each year. In 2004, 200 trees (125 + 75 additional trees) were planted. The shrub stage trees which were planted at the sites include the following: river birch (*Betula nigra*, FACW), pecan (*Carya illinoensis*, FACW), green ash (*Fraxinus pennsylvanica*, FACW), swamp white oak (*Quercus bicolor*, FACW+), and pin oak (*Quercus palustris*, FACW). The number of individuals per species is presented below. A total of 179 live individuals were counted. Therefore, this project goal is met in 2004.

## Site 1

<u>Planted Species</u>	<u>Individuals</u>
<i>Betula nigra</i> (river birch)	24
<i>Carya illinoensis</i> (pecan)	25
<i>Fraxinus pennsylvanica</i> (green ash)	28
<i>Quercus bicolor</i> (swamp white oak)	25
<i>Quercus palustris</i> (pin oak)	<u>27</u>
	129 shrub stage trees/3.14 acres

## Site 2

<u>Planted Species</u>	<u>Individuals</u>
<i>Betula nigra</i> (river birch)	09
<i>Carya illinoensis</i> (pecan)	11
<i>Fraxinus pennsylvanica</i> (green ash)	12
<i>Quercus bicolor</i> (swamp white oak)	08
<i>Quercus palustris</i> (pin oak)	<u>10</u>
	50 shrub stage trees/2.66 acres

## Summary and Recommendations

This wetland mitigation site is located on the Sangamon River floodplain. The area consists of land previously in crops and abandoned roadbed (Site 1), and an excavated depression (probably a borrow pit) and abandoned roadbed (Site 2). Existing floodplain forest is adjacent. Prior to construction, the vast majority (95%) of this site did not support hydric soils or wetland hydrology. Other than the excavation of the borrow pit, no hydrologic alteration was carried out. Therefore, the majority of the site will encounter difficulty achieving project goal 1. Although hydrophytic vegetation is present, hydric soils and wetland hydrology are for the most part absent. At site 1, 0.28 acre out of 3.14 acres (9%) meets the three wetland criteria. At Site 2, the inclusion of the borrow pit does provide 1.5 acres of wetland. However, only 0.03 acre of the remaining 1.16 acres (3%) meets the three criteria. It is our professional opinion, that unless the topography of the site is changed or the hydrology drastically altered, there is little possibility of achieving additional acreage with wetland hydrology.

So far, the site seems likely to meet the second project goal. Actual overall tree survival is high ( $179/200 = 89\%$ ), with well over the required 125 live trees present. Floristic quality is fair ( $FQI = 14.4$ ) and natural tree regeneration is present. However, the majority of wetland acres occur in the borrow pit, where no trees are planted. This area is likely to develop into a wet meadow. Out of 5.8 acres, this site currently supports 0.31 acre of planted forested wetland restoration and 1.5 acres of excavated emergent wetland.



## Appendix 1:

### Wetland Report For FAS 1637 (TR 478) Monitoring Report in Sangamon County

#### Project Description:

This is a wetland survey conducted for a wetland mitigation monitoring project FAS 1637 (TR 478) in Sangamon County. The following sources were examined while surveying the project area to determine wetland locations and boundaries: United States Geological Survey topographic map and National Wetland Inventory (NWI) map (Mechanicsburg 7.5 minute quadrangle); *Soil Survey of Sangamon County, Illinois*; aerial photographs; *National List of Plant Species That Occur In Wetlands: Illinois*; the 1987 *Corps of Engineers Wetlands Delineation Manual*; and onsite vegetation, soils, topographic and hydrologic indicators. Two routine onsite wetland determinations were completed. Both sites satisfied the wetland criteria.

The Floristic Quality Index (FQI), developed by Swink and Wilhelm (1979) and modified by J. Taft, D. Ladd, G.S. Wilhelm, and L.A. Masters (*Erigenia*, 1997), was applied to the vegetation of each wetland. This index should not be used as a substitute for quantitative vegetation analysis in assessing plant communities, but it does provide a measure of the floristic integrity of each site. The FQI was calculated as follows:  $I = R/\sqrt{N}$ , where R represents the sum of the numerical ratings for all species native to Illinois recorded in the area, and N represents the number of recorded native species. The numerical rating for each species is shown in the species list for the site. The mean-rated quality also was determined by dividing the sum of numerical ratings for all native taxa by the number of recorded native taxa. FQI values of ten or less indicate low natural quality. Sites with FQI values of 20 or more (mean rated quality  $\geq 3.0$ ) possess some evidence of native character and may be considered environmental assets.

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Site 1: This wet meadow is located 9 m (30 ft) west of Young Road and 354 m (1160 ft) north of the Sangamon River. Dominant hydrophytic vegetation, hydric soils, and wetland hydrology are present; thus, this site meets the three criteria of a wetland. The NWI did not code this site. This site functions as a water storage area. The FQI was not calculated because the site was mowed at the time of the field investigation and a detailed species list was not possible this year. The species list found in the wetland determination form is a reflection of data collected previously in September of 1999 during the monitoring of the site. This wet meadow comprises approximately 0.11 ha (0.28 acre).

Site 2: This wet meadow (Sites 2A and 2B) is 98 m (320 ft) east of Young Road and 40 m (130 ft) north of the Sangamon River. Dominant hydrophytic vegetation, hydric soils, and wetland hydrology are present; thus, this site meets the three criteria of a wetland. The NWI did not code this site as a wetland. This site functions as a water storage area. The FQI is 14.4 and the mean-rated quality is 2.1 with planted species (FQI is 11.8 and mean-rated quality is 1.8 without planted species). These values are indicative of this site having an average natural quality. This wet meadow comprises approximately 0.6 ha (1.5 acres).

### **Watershed Data**

The Sangamon River in the project area has a width of 36.5 m (120 ft) and had a moderate flow rate. This creek consists of a clay-silt substrate. This project is located in the Sangamon River-Upper basin and has a USGS hydrologic unit code of 7130006.

## Literature Cited

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## ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 1 of 6)

Field Investigators: Keene, Plocher, Busemeyer, and Larimore

Date: 30 September 2004 and 17 November 2004

Job No.: NA

Project Name: FAS 1637 (TR 478)

State: Illinois County: Sangamon Applicant: IDOT District 6

Site Name: Wet meadow

Legal Description: SW/4, NW/4, Section 9 T. 15N., R. 3W.

Location: 9 m (30 ft) west of Young Road and 354 m (1160 ft) north of the Sangamon River

Do normal environmental conditions exist at this site? Yes: X No:  
 Have the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. <i>Echinochloa muricata</i>	OBL	herb
2. <i>Iva annua</i>	FAC	herb
3. <i>Setaria glauca</i>	FAC	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%

Hydrophytic vegetation: Yes: X No:  
 Rationale: More than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS

Series and phase: Sawmill silty clay loam

On Sangamon County hydric soils list? Yes: X No:

Is the soil a histosol? Yes: No: X Histic epipedon present? Yes: No: X

Redox concentrations: Yes: X No: Redox depletions: Yes: X No:

Matrix color: N 4/

Other indicators: This soil is found in a depressional area.

Hydric soils: Yes: X No:  
 Rationale: The Natural Resources Conservation Service classifies Sawmill silty clay loam as having aquic conditions. This soil has iron masses and an iron depleted matrix. These characteristics are evidence of a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION  
Site 1 (page 2 of 6)

Field Investigators: Keene, Plocher, Busemeyer, and Larimore  
Date: 30 September 2004 and 17 November 2004  
Job No.: NA Project Name: FAS 1637 (TR 478)  
State: Illinois County: Sangamon Applicant: IDOT District 6  
Site Name: Wet meadow  
Legal Description: SW/4, NW/4, Section 9 T. 15N., R. 3W.  
Location: 9 m (30 ft) west of Young Road and 354 m (1160 ft) north of the  
Sangamon River

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA

Depth to saturated soil: > 1.3 m (50 in)

Overview of hydrological flow through the system: This site is hydrologically influenced by precipitation, sheet flow, and possible overflow from the Sangamon River. Water leaves the site via evapotranspiration and groundwater recharge.

Size of watershed: approximately 3279 km<sup>2</sup> (1266 mi<sup>2</sup>)

Other field evidence observed: The site is found in a depressional area.

Wetland hydrology: Yes: X No:

Rationale: Topographic position is evidence indicating that this site is inundated or saturated for a sufficient duration to satisfy the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the site a wetland?	Yes: X No:
Rationale for decision:	Based on the presence of dominant hydrophytic vegetation, hydric soils, and wetland hydrology, we determined that this site is a wetland. The NWI did not code this site as a wetland.

# ROUTINE ON-SITE WETLAND DETERMINATION Site 1 (page 3 of 6)

Field Investigators: Keene, Plocher, Busemeyer, and Larimore

Date: 30 September 2004 and 17 November 2004

Job No.: NA Project Name: FAS 1637 (TR 478)

State: Illinois County: Sangamon Applicant: IDOT District 6

Site Name: Wet meadow

Legal Description: SW/4, NW/4, Section 9 T. 15N., R. 3W.

Location: 9 m (30 ft) west of Young Road and 354 m (1160 ft) north of the Sangamon River

Note: The species list below is a reflection of data collected previously in September of 1999. This site was mowed at the time of the field investigation and a detailed species list was not possible this year.

## SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	CC*
<i>Acer saccharinum</i>	silver maple	tree	FACW	1
<i>Amaranthus tuberculatus</i>	tall waterhemp	herb	OBL	1
<i>Ambrosia artemisiifolia</i>	bitterweed	herb	FACU	0
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0
<i>Apocynum sibiricum</i>	Indian hemp	herb	FAC+	2
<i>Asclepias syriaca</i>	common milkweed	herb	UPL	0
<i>Aster lateriflorus</i>	side-flowered aster	herb	FACW-	2
<i>Aster ontarionis</i>	Ontario aster	herb	FAC	4
<i>Aster simplex</i>	panicled aster	herb	FACW	3
<i>Betula nigra</i>	river birch	shrub (planted)	FACW	4
<i>Bidens connata</i>	purplestem beggar-ticks	herb	OBL	2
<i>Bidens frondosa</i>	common beggar-ticks	herb	FACW	1
<i>Bidens vulgata</i>	sticktight	herb	FACW	0
<i>Boehmeria cylindrica</i>	false nettle	herb	OBL	3
<i>Bromus inermis</i>	awnless brome grass	herb	UPL	**
<i>Calystegia sepium</i>	American bindweed	vine	FAC	1
<i>Campsis radicans</i>	trumpet creeper	vine	FAC	2
<i>Carex</i> sp.	sedge	herb	----	--
<i>Carya illinoensis</i>	pecan	shrub (planted)	FACW	6
<i>Chamaesyce maculata</i>	nodding spurge	herb	FACU-	0
<i>Cirsium vulgare</i>	bull thistle	herb	FACU-	**
<i>Conyza canadensis</i>	horseweed	herb	FAC-	0
<i>Cyperus esculentus</i>	nut sedge	herb	FACW	0
<i>Dactylis glomerata</i>	orchard grass	herb	FACU	**
<i>Digitaria sanguinalis</i>	hairy crab grass	herb	FACU	**
<i>Echinochloa crus-galli</i>	barnyard grass	herb	FACW	**

(species list continued on next page)

ROUTINE ON-SITE WETLAND DETERMINATION  
Site 1 (page 4 of 6)

Field Investigators: Keene, Plocher, Busemeyer, and Larimore  
Date: 30 September 2004 and 17 November 2004  
Job No.: NA Project Name: FAS 1637 (TR 478)  
State: Illinois County: Sangamon Applicant: IDOT District 6  
Site Name: Wet meadow  
Legal Description: SW/4, NW/4, Section 9 T. 15N., R. 3W.  
Location: 9 m (30 ft) west of Young Road and 354 m (1160 ft) north of the Sangamon River

SPECIES LIST (continued)

Scientific name	Common name	Stratum	Wetland indicator status	CC*
<i>Eclipta prostrata</i>	yerba de tajo	herb	FACW	2
<i>Elymus virginicus</i>	Virginia wild rye	herb	FACW-	4
<i>Erigeron annuus</i>	annual fleabane	herb	FAC-	1
<i>Eupatorium altissimum</i>	tall boneset	herb	FACU	1
<i>Festuca pratensis</i>	fescue	herb	FACU-	**
<i>Fraxinus pennsylvanica</i>	green ash	tree, sapling, shrub (planted and natural)	FACW	2
<i>Glyceria striata</i>	fowl manna grass	herb	OBL	4
<i>Ipomoea hederacea</i>	ivy-leaved morning glory	herb	FAC	**
<i>Ipomoea purpurea</i>	common morning-glory	herb	FACU-	**
<i>Iva annua</i>	marsh elder	herb	FAC	0
<i>Leersia virginica</i>	white grass	herb	FACW	4
<i>Mirabilis nyctaginea</i>	wild four-o'clock	herb	UPL	**
<i>Morus alba</i>	white mulberry	tree	FAC	**
<i>Oenothera biennis</i>	evening primrose	herb	FACU	1
<i>Oxalis stricta</i>	yellow wood sorrel	herb	FACU	0
<i>Panicum capillare</i>	witch grass	herb	FAC	0
<i>Panicum dichotomiflorum</i>	fall panicum	herb	FACW-	0
<i>Paspalum pubiflorum glabrum</i>	beadgrass	herb	FACW	3
<i>Phleum pratense</i>	timothy	herb	FACU	**
<i>Phyla lanceolata</i>	fog-fruit	herb	OBL	1
<i>Physalis subglabrata</i>	smooth ground cherry	herb	UPL	0
<i>Phytolacca americana</i>	pokeweed	herb	FAC-	1
<i>Pilea pumila</i>	Canada clearweed	herb	FACW	3
<i>Plantago rugelii</i>	red-stalked plantain	herb	FAC	0
<i>Poa pratensis</i>	Kentucky bluegrass	herb	FAC-	**
<i>Polygonum amphibium</i>	water smartweed	herb	OBL	3

(species list continued on following page)

ROUTINE ON-SITE WETLAND DETERMINATION  
Site 1 (page 5 of 6)

Field Investigators: Keene, Plocher, Busemeyer, and Larimore

Date: 30 September 2004 and 17 November 2004

Job No.: NA Project Name: FAS 1637 (TR 478)

State: Illinois County: Sangamon Applicant: IDOT District 6

Site Name: Wet meadow

Legal Description: SW/4, NW/4, Section 9 T. 15N., R. 3W.

Location: 9 m (30 ft) west of Young Road and 354 m (1160 ft) north of the Sangamon River

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland indicator status	CC*
<i>Polygonum lapathifolium</i>	curttop lady's thumb	herb	FACW+	0
<i>Polygonum pennsylvanicum</i>	giant smartweed	herb	FACW+	1
<i>Populus deltoides</i>	eastern cottonwood	tree	FAC+	2
<i>Quercus bicolor</i>	swamp white oak	shrub (planted)	FACW+	7
<i>Quercus palustris</i>	pin oak	shrub (planted)	FACW	4
<i>Rudbeckia laciniata</i>	cutleaf coneflower	herb	FACW+	3
<i>Rumex altissimus</i>	pale dock	herb	FACW-	2
<i>Rumex crispus</i>	curly dock	herb	FAC+	**
<i>Sanicula gregaria</i>	common snakeroot	herb	FAC+	2
<i>Setaria faberi</i>	giant foxtail	herb	FACU+	**
<i>Setaria glauca</i>	pigeon grass	herb	FAC	**
<i>Sida spinosa</i>	prickly sida	herb	FACU	**
<i>Solanum carolinense</i>	horse-nettle	herb	FACU-	0
<i>Teucrium canadense virginicum</i>	American germander	herb	FACW-	3
<i>Toxicodendron radicans</i>	poison ivy	vine	FAC+	1
<i>Ulmus</i> sp.	elm	herb	----	--
<i>Viola</i> sp.	violet	herb	----	--
<i>Vitis</i> sp.	grape	herb	----	--
<i>Xanthium strumarium</i>	cocklebur	herb	FAC	0

\* Coefficient of Conservatism (Taft et al. 1997)

\*\* Non-native species

FQI =  $A/\sqrt{B}$  =  $A/C$  = D

Mean-rated quality =  $A/B$  = E



ROUTINE ON-SITE WETLAND DETERMINATION  
Site 1 (page 6 of 6)

Field Investigators: Keene, Plocher, Busemeyer, and Larimore

Date: 30 September 2004 and 17 November 2004

Job No.: NA Project Name: FAS 1637 (TR 478)

State: Illinois County: Sangamon Applicant: IDOT District 6

Site Name: Wet meadow

Legal Description: SW/4, NW/4, Section 9 T. 15N., R. 3W.

Location: 9 m (30 ft) west of Young Road and 354 m (1160 ft) north of the  
Sangamon River

Determined by: Dennis J. Keene (soils and hydrology)  
Allen Plocher, Dan Busemeyer, and Rick Larimore (vegetation  
and hydrology)  
Illinois Natural History Survey  
607 East Peabody Drive  
Champaign, Illinois 61820  
(217) 244-0873 (Keene)

ROUTINE ON-SITE WETLAND DETERMINATION  
Site 2 (page 1 of 5)

Field Investigators: Keene, Plocher, Busemeyer, and Larimore  
Date: 30 September 2004 and 17 November 2004  
Job No.: NA                      Project Name: FAS 1637 (TR 478)  
State: Illinois              County: Sangamon              Applicant: IDOT District 6  
Site Name: Wet meadow  
Legal Description: NW/4, SW/4, Section 9 T. 15N., R. 3W.  
Location: 98 m (320 ft) east of Young Road and 40 m (130 ft) north of the  
Sangamon River

Do normal environmental conditions exist at this site?                      Yes: X              No:  
Have the vegetation, soils, or hydrology been significantly disturbed?    Yes:              No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. <i>Aster simplex</i>	FACW	herb
2. <i>Phyla lanceolata</i>	OBL	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%

Hydrophytic vegetation:    Yes: X              No:  
Rationale: More than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS

Series and phase: Undetermined (scraped excavated area)

On Sangamon County hydric soils list?    Yes: X              No:              Undet: X

Is the soil a histosol?    Yes:              No: X              Histic epipedon present?    Yes:              No: X

Redox concentrations:    Yes: X              No:              Redox depletions:    Yes: X              No:

Matrix color: 2.5Y 5/1 and 5/2

Other indicators: This soil is found in a depressional area.

Hydric soils:    Yes: X              No:  
Rationale: This soil has pore linings, iron masses, and an iron depleted matrix. These characteristics are evidence of a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION  
Site 2 (page 2 of 5)

Field Investigators: Keene, Plocher, Busemeyer, and Larimore  
Date: 30 September 2004 and 17 November 2004  
Job No.: NA Project Name: FAS 1637 (TR 478)  
State: Illinois County: Sangamon Applicant: IDOT District 6  
Site Name: Wet meadow  
Legal Description: NW/4, SW/4, Section 9 T. 15N., R. 3W.  
Location: 98 m (320 ft) east of Young Road and 40 m (130 ft) north of the  
Sangamon River

HYDROLOGY

Inundated: Yes: X (in some areas) No: Depth of standing water: < 0.3 m (1 ft)  
Depth to saturated soil: At surface to greater than 1 m (1.3 m)  
Overview of hydrological flow through the system: This site is hydrologically influenced  
by precipitation, overflow from the Sangamon River, and sheet flow from higher  
surrounding areas. Water leaves the site via evapotranspiration and groundwater  
recharge.  
Size of watershed: approximately 3279 km<sup>2</sup> (1266 mi<sup>2</sup>)  
Other field evidence observed: This site is found in a low area.

Wetland hydrology: Yes: X No:  
Rationale: Low topography and standing water are evidence indicating  
that this site is inundated or saturated for a sufficient  
duration to satisfy the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the site a wetland?	Yes: X No:
Rationale for decision:	Based on the presence of dominant hydrophytic vegetation, hydric soils, and wetland hydrology, we determined that this site is a wetland. The NWI did not code this site as a wetland.

ROUTINE ON-SITE WETLAND DETERMINATION  
Site 2 (page 3 of 5)

Field Investigators: Keene, Plocher, Busemeyer, and Larimore  
Date: 30 September 2004 and 17 November 2004  
Job No.: NA Project Name: FAS 1637 (TR 478)  
State: Illinois County: Sangamon Applicant: IDOT District 6  
Site Name: Wet meadow  
Legal Description: NW/4, SW/4, Section 9 T. 15N., R. 3W.  
Location: 98 m (320 ft) east of Young Road and 40 m (130 ft) north of the  
Sangamon River

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	CC*
<i>Acalypha rhomboidea</i>	three-seeded mercury	herb	FACU	0
<i>Acer negundo</i>	box elder	shrub	FACW-	1
<i>Acer saccharinum</i>	silver maple	shrub	FACW	1
<i>Amaranthus tuberculatus</i>	tall waterhemp	herb	OBL	1
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0
<i>Ammannia coccinea</i>	long-leaved ammannia	herb	OBL	5
<i>Apocynum cannabinum</i>	dogbane	herb	FAC	2
<i>Asclepias incarnata</i>	swamp milkweed	herb	OBL	4
<i>Aster simplex</i>	panicled aster	herb	FACW	3
<i>Betula nigra</i>	river birch	shrub	FACW	4
<i>Bidens connata</i>	purplestem beggar-ticks	herb	OBL	2
<i>Bidens frondosa</i>	common beggar-ticks	herb	FACW	1
<i>Campsis radicans</i>	trumpet creeper	herb	FAC	2
<i>Carya illinoensis</i>	pecan	shrub	FACW	6
<i>Chamaesyce humistrata</i>	milk spurge	herb	FACW	1
<i>Cynanchum laeve</i>	blue vine	herb	FAC	1
<i>Cyperus esculentus</i>	nut sedge	herb	FACW	0
<i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0
<i>Ellisia nyctelea</i>	Aunt Lucy	herb	FAC+	1
<i>Eragrostis hypnoides</i>	creeping love grass	herb	OBL	5
<i>Eragrostis pectinacea</i>	Carolina love grass	herb	FAC	0
<i>Eupatorium coelestinum</i>	mist flower	herb	FAC+	3
<i>Eupatorium serotinum</i>	late boneset	herb	FAC+	1
<i>Fraxinus pennsylvanica</i>	green ash	shrub	FACW	2
<i>Iva annua</i>	marsh elder	herb	FAC	0
<i>Leptochloa attenuata</i>	sprangle top	herb	FACW+	7
<i>Lycopus americanus</i>	common water horehound	herb	OBL	3
<i>Panicum dichotomiflorum</i>	fall panicum	herb	FACW-	0

(species list continued on following page)

ROUTINE ON-SITE WETLAND DETERMINATION  
Site 2 (page 4 of 5)

Field Investigators: Keene, Plocher, Busemeyer, and Larimore  
Date: 30 September 2004 and 17 November 2004  
Job No.: NA Project Name: FAS 1637 (TR 478)  
State: Illinois County: Sangamon Applicant: IDOT District 6  
Site Name: Wet meadow  
Legal Description: NW/4, SW/4, Section 9 T. 15N., R. 3W.  
Location: 98 m (320 ft) east of Young Road and 40 m (130 ft) north of the  
Sangamon River

SPECIES LIST (concluded)

Scientific name	Common name	Stratum	Wetland indicator status	CC*
<i>Paspalum fluitans</i>	swamp beadgrass	herb	OBL	5
<i>Phyla lanceolata</i>	fog-fruit	herb	OBL	1
<i>Physostegia virginiana</i>	false dragonhead	herb	FACW	6
<i>Plantago rugelii</i>	red-stalked plantain	herb	FAC	0
<i>Polygonum pensylvanicum</i>	giant smartweed	herb	FACW+	1
<i>Populus deltoides</i>	eastern cottonwood	shrub	FAC+	2
<i>Quercus bicolor</i>	swamp white oak	shrub	FACW+	7
<i>Quercus palustris</i>	pin oak	shrub	FACW	4
<i>Rorippa islandica</i>	marsh yellow cress	herb	OBL	4
<i>Rudbeckia laciniata</i>	cutleaf coneflower	herb	FACW+	3
<i>Salix exigua</i>	sandbar willow	shrub	OBL	1
<i>Salix nigra</i>	black willow	shrub	OBL	3
<i>Senecio glabellus</i>	butterweed	herb	OBL	0
<i>Setaria faberi</i>	giant foxtail	herb	FACU+	**
<i>Setaria glauca</i>	pigeon grass	herb	FAC	**
<i>Sida spinosa</i>	prickly sida	herb	FACU	**
<i>Solanum carolinense</i>	horse-nettle	herb	FACU-	0
<i>Solidago canadensis</i>	Canada goldenrod	herb	FACU	1
<i>Verbena hastata</i>	blue vervain	herb	FACW+	3
<i>Viola pratincola</i>	common blue violet	herb	FAC	1
<i>Xanthium strumarium</i>	cocklebur	herb	FAC	0

\* Coefficient of Conservatism (Taft et al. 1997)

\*\* Non-native species

FQI =  $98/\sqrt{46} = 98/6.8 = 14.4$  (with planted species)

Mean-rated quality =  $98/46 = 2.1$  (with planted species)

FQI =  $77/\sqrt{42} = 77/6.5 = 11.8$  (without planted species)

Mean-rated quality =  $77/42 = 1.8$  (without planted species)

ROUTINE ON-SITE WETLAND DETERMINATION  
Site 2 (page 5 of 5)

Field Investigators: Keene, Plocher, Busemeyer, and Larimore

Date: 30 September 2004 and 17 November 2004

Job No.: NA Project Name: FAS 1637 (TR 478)

State: Illinois County: Sangamon Applicant: IDOT District 6

Site Name: Wet meadow

Legal Description: NW/4, SW/4, Section 9 T. 15N., R. 3W.

Location: 98 m (320 ft) east of Young Road and 40 m (130 ft) north of the  
Sangamon River

Determined by: Dennis J. Keene (soils and hydrology)  
Allen Plocher, Dan Busemeyer, and Rick Larimore (vegetation  
and hydrology)  
Illinois Natural History Survey  
607 East Peabody Drive  
Champaign, Illinois 61820  
(217) 244-0873 (Keene)

Appendix 2:  
Wetland Mitigation Monitoring Photos for  
FAS 1637 (TR 478)



Photos of Site 1, facing north





Photo of site 2, facing southeast

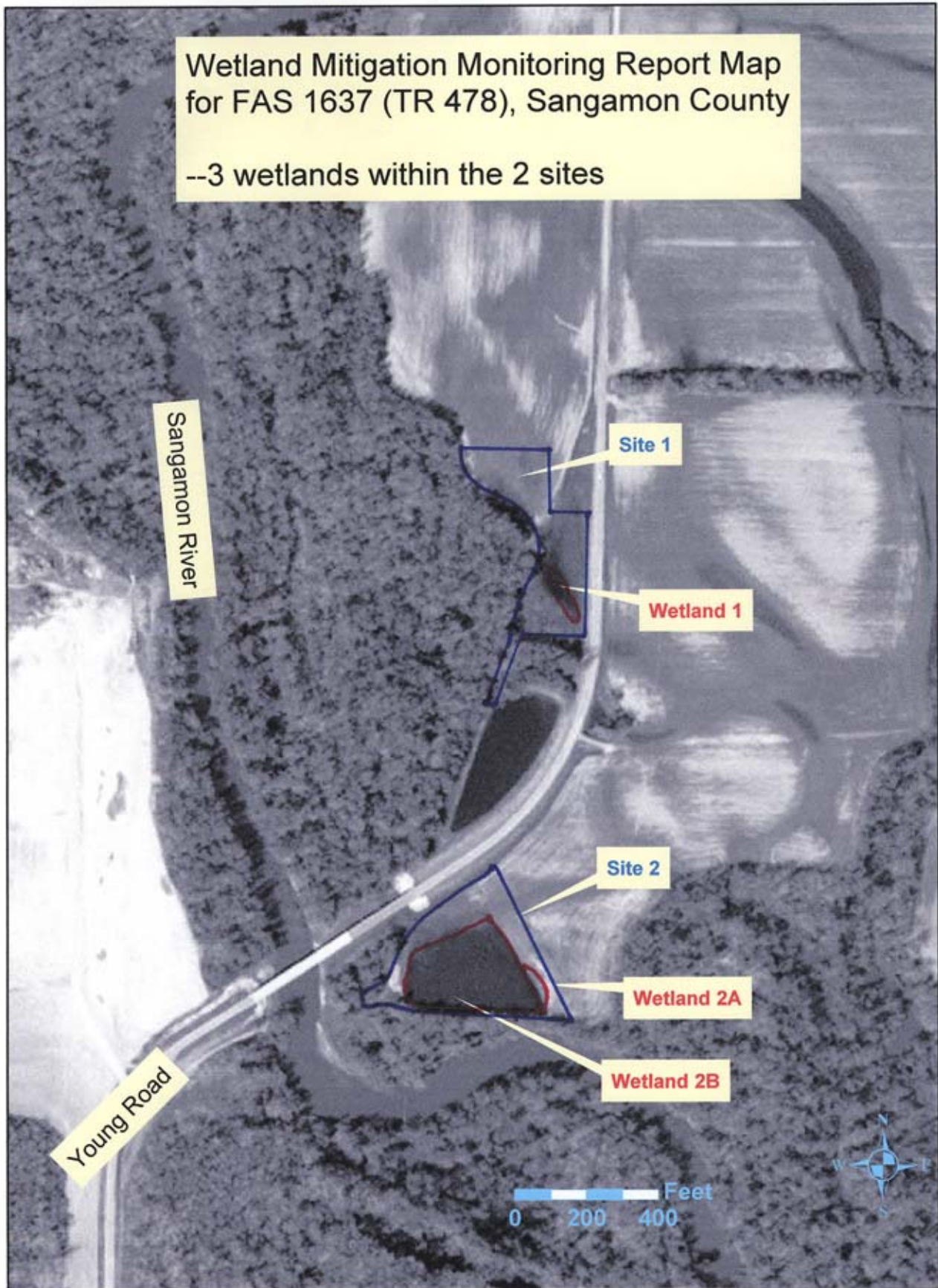


Photo of site 2, facing southwest on old road bed



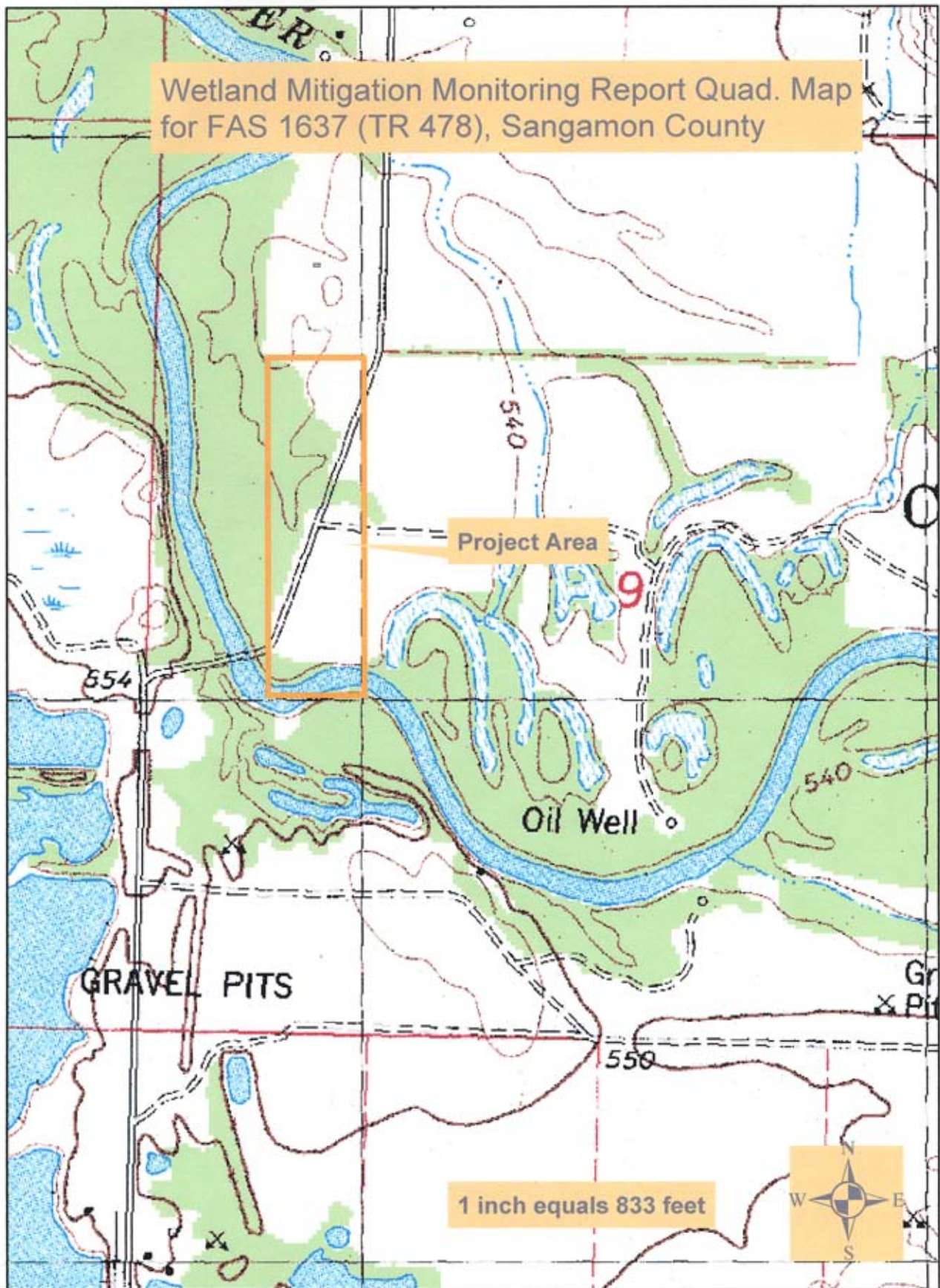
Wetland Mitigation Monitoring Report Map  
for FAS 1637 (TR 478), Sangamon County

--3 wetlands within the 2 sites





Wetland Mitigation Monitoring Report Quad. Map  
for FAS 1637 (TR 478), Sangamon County





NRCS Soil Map of FAS 1637  
(TR 478) Wetland Mitigation  
Monitoring Report, Sangamon County

RIVER

CHRISTIAN COUNTY

water

Tice silty clay loam  
(non-hydric soil)